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United States Department of Agriculture
Natural Resources Conservation Service

Idaho Water Supply Outlook Report

April 1, 2005

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Farewell to a Snow Surveyor and True Conservationist

The Idaho conservation community lost one of its heroes when **Morley Nelson** died February 21, 2005 at the age of 88. Nelson served as the Columbia Basin Snow Survey Supervisor in Boise, Idaho from 1948 to 1971. Almost immediately after arriving on the job, Nelson started forecasting streams in Idaho. In 1948, 13 forecasts were published and increased to 30 the following year. In his first year, Nelson predicted streamflows for the Columbia River, and achieved an astounding 96 percent accuracy. This helped set the standard and showed how predicting streamflows from the winter snowpack could be used. He located and installed many of the snow measuring stations used today and helped develop the first telemetry to automate these mountainous snow sites. When selecting sites, Nelson would look for the highest point on a mountain where the wind didn't blow, so the snow would settle naturally and accumulate during the winter. On his travels to snow sites, he learned where the raptor nests were and was instrumental in establishing the Snake River Birds of Prey Conservation Area.

It was in 1955, that Nelson and the Twin Falls Soil and Water Conservation District met with the Salmon Falls Tract farmers to discuss the coming season's water supply. The 50th Salmon Falls Water Supply meeting is April 7, 2005 at 7:30 PM in Hollister, Idaho. This year's snowpack and water supply outlook across southern Idaho is similar to that of 1955. A lot has changed in 50 years, and while the wet years and dry years keep coming back, the need for timely, streamflow forecasts remains and provides valuable information not just for Idaho but the Western United States.

Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys

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How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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IDAHO WATER SUPPLY OUTLOOK REPORT

April 1, 2005

SUMMARY

Thank goodness for the second half of March! Idaho received a near normal month's precipitation in the last two weeks making March the first winter month of 2005 to provide near or above normal precipitation across most of the state. Unfortunately, it is too little, too late. Record low snowpacks of around 50% of average still dominate northern Idaho whereas snowpacks in central Idaho have increased to the 60-70% of average range. In southern and eastern Idaho, snowpacks are better off at 70-85% of average. However, due to well below average precipitation the previous four months, the water supply outlook in Idaho remains gloomy. Most snowpacks are about 60-80% of last year and water year to date precipitation is only slightly higher than that; however antecedent soil moisture conditions are better than previous years. Drought conditions will continue in Idaho and spread in the western and northern part of the state where streamflows will be near record low for northern Idaho around 50% of average. Elsewhere in the state, most streams are forecast at 45-65% of average, except for Magic Reservoir inflow which is at 27% of average and the headwaters of Bear River in Utah at 115%. Water users should plan accordingly based on their water use, water right and future Water Call decisions.

With the majority of winter just about over, snowpack totals range from 40% of average (near record low) in Spokane River basin, to 97% in the Bear River basin. The warm and dry trend continued through the first half of March, but did a 180 degree turn in the last two weeks. Contrary to last year when it was one of the driest March's on record, the entire state of Idaho received near or above normal precipitation. The Panhandle Region, which was dry all season, received the highest precipitation in the state at 114% of average. The Upper Snake River basin, which also needed an above average month or two, received the least in the state at 82% of average. Water year to date precipitation amounts range from a low of 62% of average in the west-central mountains to 102% in the Bear River basin. No significant changes to report concerning reservoir storage as reservoirs across central and southern Idaho remain below average levels and northern Idaho reservoir levels are well above average. Now with the snow water content reaching its seasonal peak for the winter, a cool, wet spring is critical for preserving water in the higher elevation snowpacks for use later this summer. Water users will be watching the weather closely to see if the cool, wet trends will continue and help lessen impacts from the long-term drought.

SNOWPACK

The last half of March provided some much needed snowfall across Idaho; however it only improved snowpacks by 5-10 percentage points in most areas. More importantly, the cooler temperatures helped preserve the little water stored in this year's mountain snowpacks. Most snowpacks across Idaho hold only 60-80% of the snow water equivalent they contained a year ago. Snowpacks in northern Idaho are record low around 50% of average. The Salmon, Weiser, Payette and Boise River basins increased from 50% to 60% of average and the Wood and Lost River basins range from 70-85% of average. The Upper Snake and Southside Snake River basins have maintained snowpacks in the 70-80% of average range all winter while the Bear River basin dropped slightly, but still tops out at 97% of average.

PRECIPITATION

March was the first winter month of 2005 to provide near or above normal precipitation, and it all came in the last two weeks of the month. Unfortunately it is too little, too late. The Panhandle, Clearwater, Weiser, Payette, Boise, Southside Snake River basins all received over 100% of average precipitation in March whereas the Salmon, Wood and Lost, Upper Snake and Bear River basins received 80-100% of average. This is the opposite of last year when combined March-April precipitation was the driest on record. Water year to date precipitation amounts range from a low of 62% of average in the west-central mountains 102% in the Bear River basin and most of the state is still well below average.

RESERVOIRS

Reservoir storages have begun to increase, however storage remains below average across most of the state except for northern Idaho. Most reservoirs are storing slightly more water than last year because of timely rains last summer and fall, but amounts are still below average. Storage levels are similar to the past few years due to below normal streamflows since the summer of 2000. Reservoir storage ranges from 17% of average in Bear Lake to 140% of average in Dworshak Reservoir. Most reservoirs in the Panhandle and Clearwater are near or above average whereas storage in the Payette system increased to 111% of average and the Boise system increased from 69% to 82% of average. The cumulative drought effects are most evident in the southern and central part of the state where Salmon Falls Reservoir is only 16% full, 41% of average, and Magic Reservoir is 19% full and 34% of average. Jackson Lake is only 18% full, 32% of average and Palisades Reservoir is 51% full, 75% of average. Brownlee Reservoir is the one bright spot in southern Idaho at 98% capacity, 135% of average. In southeast Idaho, Bear Lake remains at the lowest level since 1936, 11% full, 17% of average; water allocations will be below a full amount.

Note: NRCS reports reservoir information in terms of usable volumes, which includes both active, inactive and in some cases, dead storage. Other operators may report reservoir contents in different terms. For additional information, see the reservoir definitions in this report.

STREAMFLOW

At last, a month of near normal precipitation finally occurred and prevented streamflow forecasts from decreasing once again. Last month streamflow forecasts decreased by 15 percentage points, but a near normal March served to stabilize streamflow forecasts at the 45-65% of average range for the April-September period across most of the state. The Panhandle Region is forecast at 45-75% of average and the Clearwater and Salmon River basins are 45-60% of average. The Upper Snake River basin is in the 35-75% of average range and the high desert streams south of the Snake River are forecast at 40-65% of average. The Wood and Lost River basins remain at 25-60% of average whereas the Weiser, Payette, and Boise River basins' forecast remains in the 40-55% of average range. Camas Creek near Blaine and Big Wood River above Magic are the lowest forecasts in the state at 24-30% of average, whereas the Bear River basin continues to boast some of the highest streamflow forecasts in the state. The headwater streams of the Bear are forecast at 115% of average and decrease downstream to 62% for the Bear River at Stewart Dam because of the cumulative drought. Because of the volatile weather conditions in this critical season, our streamflow forecasts will be updated in mid-April on our Water Supply web page:

<http://www.id.nrcs.usda.gov/snow/watersupply/>

These forecast numbers mentioned in the narrative are the volume under the 50% Chance of Exceeding, which means there is a 50% chance the volume will be greater or less than the given value. Due to the last five years of drought conditions, water users should consider using a lesser exceedance forecast to reduce the risk of coming up short on water. The streamflow forecasts are not looking good at this point, as we approach the usual peak in snow water equivalent. A cool, wet spring, like in 2003, would help preserve the high elevation snowpack, and reduce severity of drought conditions. Without

more snowfall in the high country, snowpacks will melt out a month earlier than normal. A warm, dry April and May will cause further drought impacts and reduce the limited water supplies for this year.

RECREATION

Just when people thought they had skied their last run or snowmobiled on their last trail, Mother Nature threw a big, hanging curveball and made everyone rethink their weekend plans. Some people were happy to dig out the skis and snowmobiles again and some were sorry to see the bikes and hiking boots put back in the closet, either way, nobody was complaining about the much needed moisture. Fish and boaters alike breathed a small sigh of relief as recent precipitation and cooler temperatures have delayed spring runoff and the inevitable low summer flows. Avalanche conditions worsened with the rapid snowfall on top of a strong crust so be careful in the backcountry. Hopefully, the cool, wet trend will continue throughout the spring as the short-term forecast for early April is looking good so far. However, do not be deceived, a large water deficit still exists up in the mountain snowpacks and cumulative drought effects still persist. Therefore, river runners should not bury their boats too deep in the garage and can still expect a relatively short high water season. Magnitude and timing of snowmelt peaks will depend on spring precipitation and temperature.

WESTERN SNOW CONFERENCE

A tradition started in 1932 to share information about measuring snow and predicting streamflow for snowmelt dominated streams in the western U.S. This tradition became the Western Snow Conference. The 73rd annual conference will be in Great Falls, Montana April 11-14, 2005. Today, the Western Snow Conference provides an international forum for individuals and organizations to share their research and information on snow hydrology. This year's theme is "Exploring New Frontiers in Snow Hydrology – 200 Years after Lewis & Clark". Session topics include: Remote Sensing of Mountain Snowpack and panel discussion, Hydrologic Modeling in Snowmelt Dominated Basins, Historical View of Snow and Climate, and the Role of Snow in Water Conservation, along with a poster paper display and vendor exhibit. Additional information for registration and lodging is on the Western Snow Conference web page at: <http://www.westernsnowconference.org/>

NRCS SNOW SURVEY DATA AND WATER SUPPLY USERS

During the first two weeks of March, April and May of 2005 the Snow Survey and Water Supply Forecasting Program will be asking for volunteers to provide feedback on Customer Satisfaction. At the NRCS National Water and Climate Center web site a small window will appear asking if you would like to participate in a Satisfaction Survey, or you can volunteer for the survey at <http://www.wcc.nrcs.usda.gov> Thanks for considering participation.

The Surface Water Supply Index (SWSI) is a predictive indicator of surface water availability within a watershed for the spring and summer water use season. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow. SWSI values are scaled from +4.0 (abundant supply) to -4.0 (extremely dry), with a value of zero indicating a median water supply as compared to historical occurrences. The SWSI analysis period is from 1971 to present.

SWSI values provide a more comprehensive outlook of water availability by combining streamflow forecasts and reservoir storage where appropriate. The SWSI index allows comparison of water availability between basins for drought or flood severity analysis. Threshold SWSI values have been determined for some basins to indicate the potential for agricultural irrigation water shortages.

<i>BASIN or REGION</i>	<i>SWSI Value</i>	<i>Most Recent Year With Similar SWSI Value</i>	<i>Agricultural Water Supply Shortage May Occur When SWSI is Less Than</i>
PANHANDLE	-3.5	----	NA
CLEARWATER	-2.4	1994	NA
SALMON	-2.6	1988	NA
WEISER	-2.6	1991/94	NA
PAYETTE	-2.6	2001	NA
BOISE	-3.1	2001	-2.1
BIG WOOD	-2.6	2004	-1.0
LITTLE WOOD	-1.6	2004	-2.0
BIG LOST	-1.2	2003	-0.5
LITTLE LOST	-2.6	2001	0.0
HENRYS FORK	-3.3	1992	-3.3
SNAKE (HEISE)	-3.8	2001	-2.0
OAKLEY	-2.4	2004	-1.0
SALMON FALLS	-2.6	2002	-1.0
BRUNEAU	-1.0	2002	NA
BEAR RIVER	-3.8	2003/04	-3.8

SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION

-4	-3	-2	-1	0	1	2	3	4
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99%	87%	75%	63%	50%	37%	25%	13%	1%

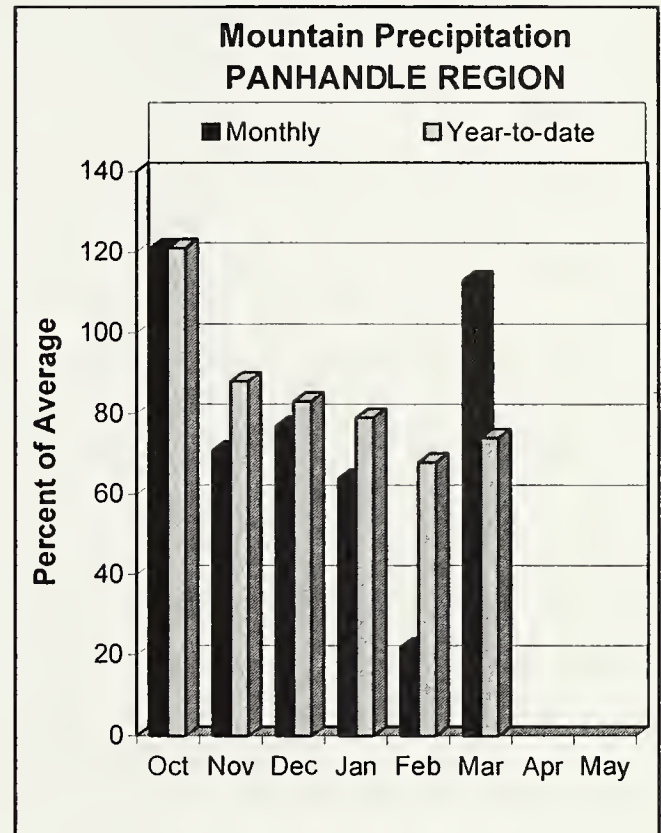
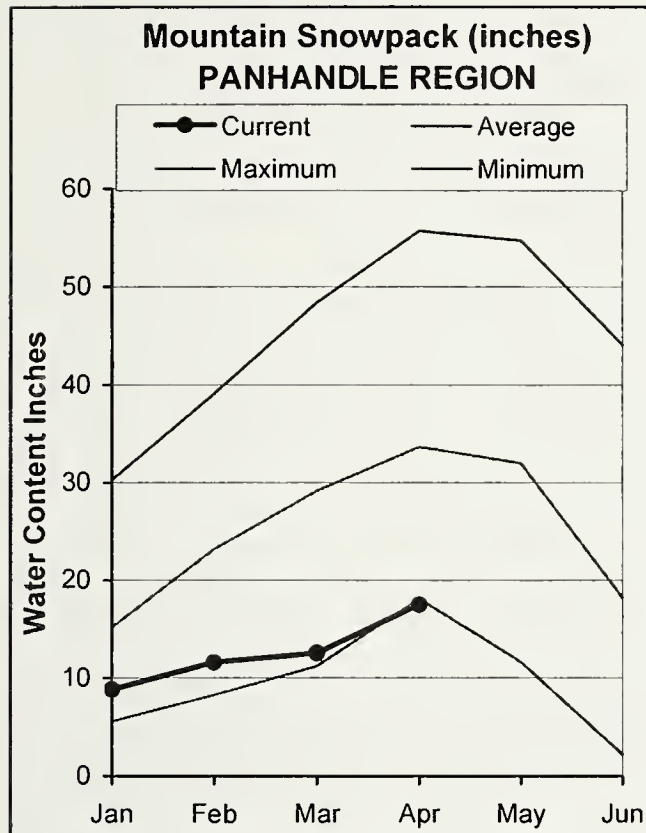
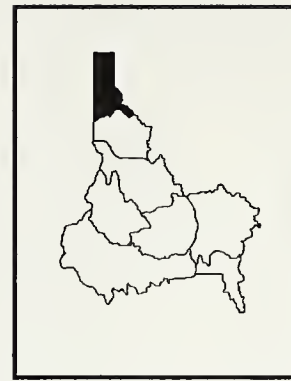
Much	Below		Near Normal			Above	Much	
Below	Normal		Water Supply			Normal	Above	

NA = Not Applicable

Note: The Percent Chance of Exceedance is an indicator of how often a range of SWSI values might be expected to occur. Each SWSI unit represents about 12% of the historical occurrences. As an example of interpreting the above scale, the SWSI can be expected to be greater than -3.0, 87% of the time and less than -3.0, 13% of the time. Half the time, the SWSI will be below and half the time above a value of zero. The interval between -1.5 and +1.5 described as "Near Normal Water Supply," represents three SWSI units and would be expected to occur about one-third (36%) of the time.

PANHANDLE REGION

APRIL 1, 2005



WATER SUPPLY OUTLOOK

Winter finally arrived in the Pacific Northwest when Mother Nature delivered an entire month's worth of precipitation to the Idaho Panhandle in the last two weeks of March. March precipitation was 114% of average and helped a little, but it was not enough to overcome the insurmountable snowpack deficit in the high country. Some snow measuring stations received 2-3 inches of snow water in a 24 hour period which translates to about 20-30 inches of snowfall. Lower elevations received rain and brought a rapid rise in streamflows throughout the region, however, with a break in the storms, the streams are decreasing nearly as fast as they went up. For example, St. Maries River was near record low at 200 cfs on March 26 because of the dry spell, it increased to 3,000 cfs on March 28, and quickly returned to average (1000 cfs) on April 1. Maximum flow for the station is 12,300 cfs on February 9, 1996. The rain boosted stream levels throughout the region, but without snowmelt to sustain the streamflows, the rivers dropped as precipitation ceased. Snowpacks are half of average and are the second or third lowest since 1961. The lowest snowpacks occurred in 2001; the current snowpack is similar to that of 1977. Without much snow in the high country, streamflows are forecast at 73% of average for the Kootenai River, 54% for Pend Oreille Lake inflow. Smith and Boundary rivers are forecast at 63% of average and Moyie River at 54% of average. The lowest forecasts and near record minimum volumes are in the Spokane basin and its tributaries at 47-51% of average. With the early runoff and lack of snow to sustain flows, storage in Coeur d'Alene Lake is being increased to ensure filling and is currently at 79% of its summer capacity. Additional snowmelt streamflow peaks are possible but will be of short duration without additional rainfall.

PANHANDLE REGION
Streamflow Forecasts - April 1, 2005

Forecast Point	Forecast Period	<<===== Drier =====		Future Conditions		===== Wetter =====>>		30-Yr Avg. (1000AF)
				Chance Of Exceeding *				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
KOOTENAI at Leonia (1,2)	APR-JUL	4210	4840	5120	73	5400	6030	7040
	APR-SEP	4330	5420	5910	73	6400	7490	8120
MOYIE RIVER at Eastport	APR-JUL	170	200	220	54	240	270	405
	APR-SEP	170	205	225	54	245	280	420
SMITH CREEK	APR-JUL	56	69	78	63	87	100	123
	APR-SEP	56	71	81	63	91	106	129
BOUNDARY CREEK	APR-JUL	56	69	77	63	85	98	123
	APR-SEP	58	71	80	62	89	102	129
CLARK FK at Whitehorse Rpds (1,2)	APR-JUL	3920	5580	6330	56	7080	8740	11300
	APR-SEP	4310	6130	6960	56	7790	9610	12500
PEND OREILLE Lake Inflow (2)	APR-JUL	4800	6020	6850	54	7680	8900	12700
	APR-SEP	5230	6560	7470	54	8380	9710	13900
PRIEST near Priest River (1,2)	APR-JUL	380	470	510	63	550	640	815
	APR-SEP	325	475	545	63	615	765	870
NF COEUR D'ALENE RIVER AT ENAVILLE	APR-JUL	245	330	390	53	450	535	740
	APR-SEP	259	350	410	53	470	560	780
ST. JOE at Calder	APR-JUL	405	510	580	51	650	755	1140
	APR-SEP	435	545	615	51	685	795	1200
SPOKANE near Post Falls (2)	APR-JUL	730	1010	1200	47	1390	1670	2550
	APR-SEP	760	1055	1250	47	1450	1740	2650
SPOKANE at Long Lake (2)	APR-JUL	875	1210	1440	51	1670	2010	2850
	APR-SEP	990	1350	1590	52	1830	2190	3070

PANHANDLE REGION
Reservoir Storage (1000 AF) - End of March

PANHANDLE REGION
Watershed Snowpack Analysis - April 1, 2005

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
HUNGRY HORSE	3451.0	3164.0	2456.0	1886.7	Kootenai ab Bonners Ferry	34	68	57
FLATHEAD LAKE	1791.0	1153.0	649.3	738.5	Moyie River	10	78	67
NOXON RAPIDS	335.0	326.6	316.9	272.9	Priest River	5	63	56
PEND OREILLE	1561.3	916.5	570.8	763.6	Pend Oreille River	106	66	54
COEUR D'ALENE	238.5	189.5	160.5	169.5	Rathdrum Creek	2	9	7
PRIEST LAKE	119.3	59.9	63.2	65.5	Hayden Lake	2	8	8
					Coeur d'Alene River	9	51	44
					St. Joe River	6	60	50
					Spokane River	15	47	40
					Palouse River	2	8	7

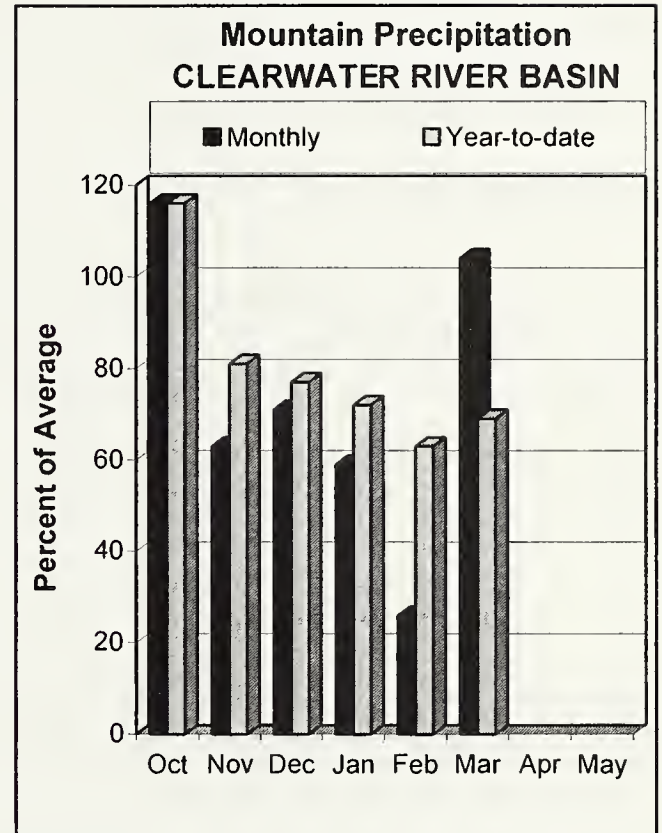
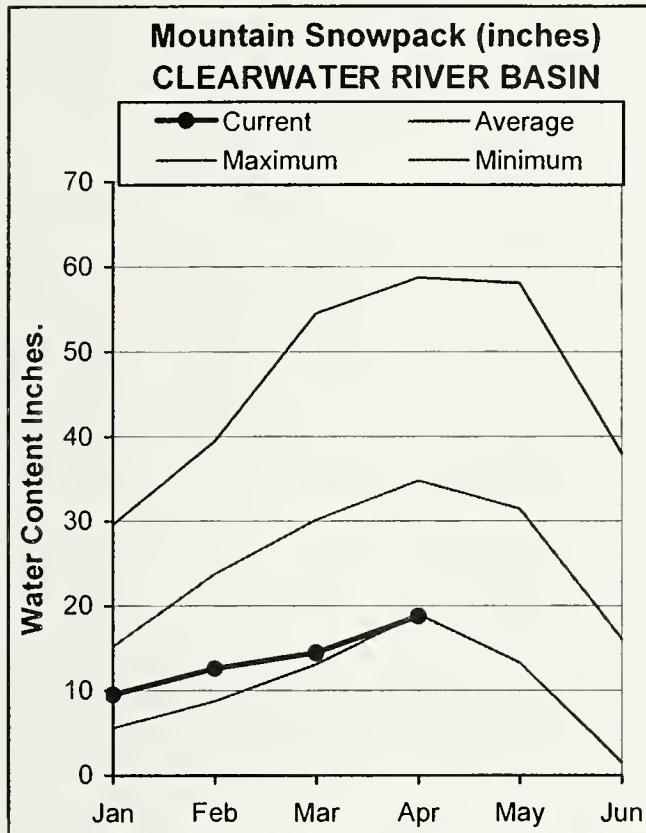
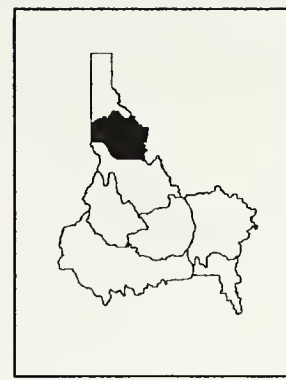
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

CLEARWATER RIVER BASIN

APRIL 1, 2005



WATER SUPPLY OUTLOOK

Even with normal precipitation in the Clearwater in March, the snowpack slipped from the second lowest levels since 1961 a month ago, to record low snow water content amounts in the Selway, North Fork Clearwater and Clearwater basin as a whole. The current April 1 snowpack is slightly less than 2001 which was the previous record holder, except in the Locsha basin in which the snowpack is the same as in 2001. These record low snowpacks are 50% of average. Dworshak Reservoir storage remains near record high at 89% of capacity, 140% of average; however inflow is forecast at only 58% of average, which is almost a new record low. The Selway and Locsha rivers are forecast at 59% of average. The Clearwater River at Spalding is forecast at 59% of average; the minimum flow since 1926 is 51% and occurred both in 1973 and 1977. Precipitation in March was 104% of average and is 69% since the start of the water year, about three-quarters of last year. The recent moisture and fall precipitation improved soil moisture, but without the high elevation snowpack to sustain streamflows when snow melts, the high water will be of short duration and streams will return to baseflows early and remain below normal for the rest of the season.

CLEARWATER RIVER BASIN
Streamflow Forecasts - April 1, 2005

Forecast Point	Forecast Period	<<===== Drier =====		Future Conditions =====		===== Wetter =====>>		30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SELWAY near Lowell	APR-JUL	980	1120	1220	59	1320	1460	2060
	APR-SEP	1020	1170	1280	59	1390	1540	2170
LOCHSA near Lowell	APR-JUL	725	830	905	59	980	1085	1530
	APR-SEP	760	875	950	59	1030	1140	1610
DWORSHAK RESV INFLOW (1,2)	APR-JUL	910	1335	1530	58	1720	2150	2640
	APR-SEP	1010	1435	1630	58	1820	2250	2800
CLEARWATER at Orofino (1)	APR-JUL	1510	2380	2780	60	3180	4050	4650
	APR-SEP	1650	2520	2920	60	3320	4190	4900
CLEARWATER at Spalding (1,2)	APR-JUL	2600	3820	4380	59	4940	6160	7430
	APR-SEP	2860	4080	4640	59	5200	6420	7850

CLEARWATER RIVER BASIN Reservoir Storage (1000 AF) - End of March					CLEARWATER RIVER BASIN Watershed Snowpack Analysis - April 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DWORSHAK	3468.0	3083.6	2371.2	2205.4	North Fork Clearwater	9	61	54
					Lochsa River	4	58	48
					Selway River	6	60	50
					Clearwater Basin Total	19	60	51

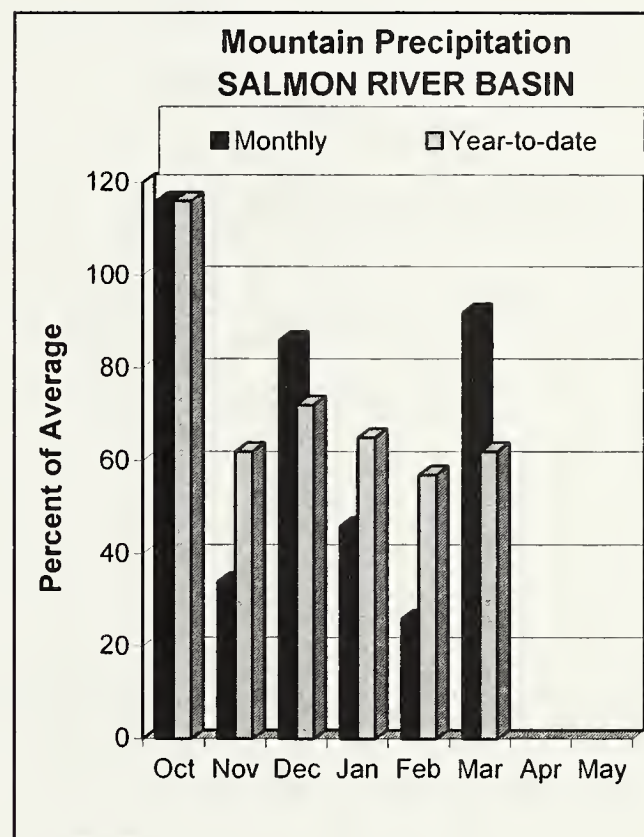
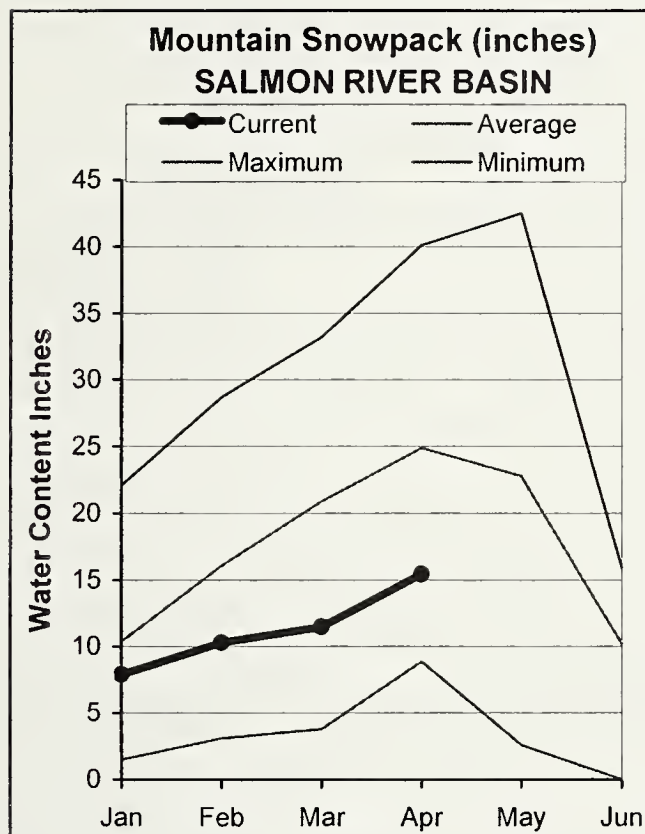
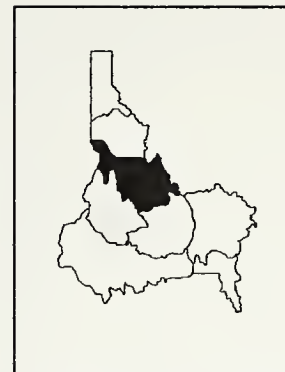
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

SALMON RIVER BASIN

APRIL 1, 2005



WATER SUPPLY OUTLOOK

Nearly an entire month's worth of precipitation fell the last two weeks of March bringing the monthly total precipitation to 92% of average. Water year to date precipitation is 62% of average, only three-quarters of last year's amount. Snowpacks are 60% of average in Salmon basin and its tributaries. The snowpack in the Middle Fork Salmon River and entire Salmon basin is the fifth lowest since 1963. Years with a smaller snowpack, from lowest to higher amounts, are 1977, 2001, 1994, 1987 and this year. Streamflow forecasts remain low projecting 47% of average for the Lemhi River. The Middle Fork Salmon River and Salmon River above Salmon are forecast at 50% of average, while the Salmon River at White Bird is forecast at 56%. In 2001, the April-September streamflow volume was 46% of average at White Bird. Depending upon future weather, the streamflow volume should be greater this year, but not by a whole lot. Spring temperatures and precipitation will determine magnitude and timing of peak streamflows, but with little snow in the high country, water users in the Salmon basin can expect a very short high water season. This should lengthen boating opportunities for some floaters on the main Salmon by allowing river runners to put on the river earlier. The Middle Fork Salmon River will have a short high water season and early return to low flow levels. River runners may plan to fly into Indian Creek as the streamflow gage height should be around 2.0 feet in early July because of lack mountain snow to feed the streams.

SALMON RIVER BASIN
Streamflow Forecasts - April 1, 2005

Forecast Point	Forecast Period	<<===== Drier =====		Future Conditions =====		===== Wetter =====>>		30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SALMON at Salmon (1)	APR-JUL	378	442	485	57	580	795	855
	APR-SEP	458	522	565	57	660	875	1000
Lemhi River nr Lemhi	APR-JUL	24	33	40	47	47	60	86
	APR-SEP	28	39	48	46	58	74	105
MF Salmon at MF Lodge	APR-JUL	268	338	390	50	446	535	785
	APR-SEP	295	372	430	49	492	590	875
SALMON at White Bird (1)	APR-JUL	1900	2860	3290	56	3720	4680	5850
	APR-SEP	2260	3220	3650	56	4080	5040	6480

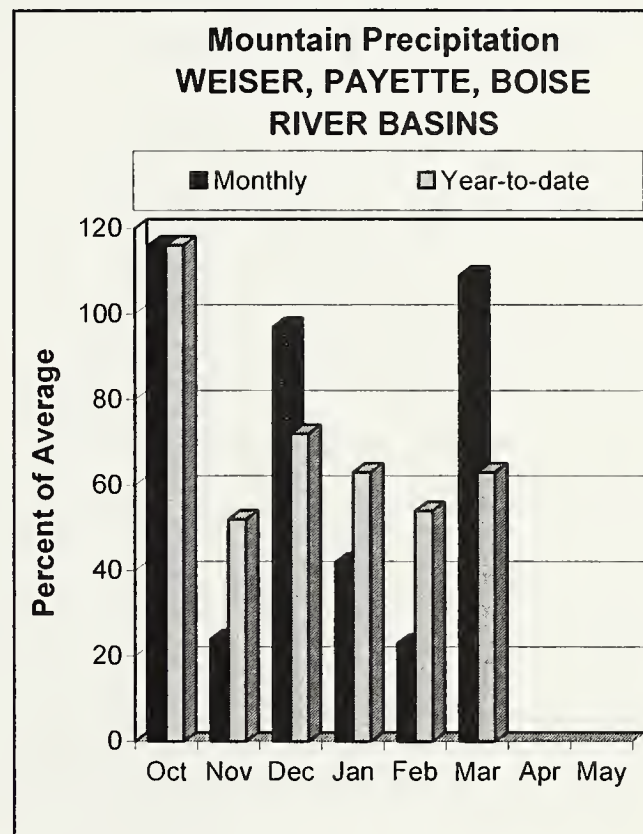
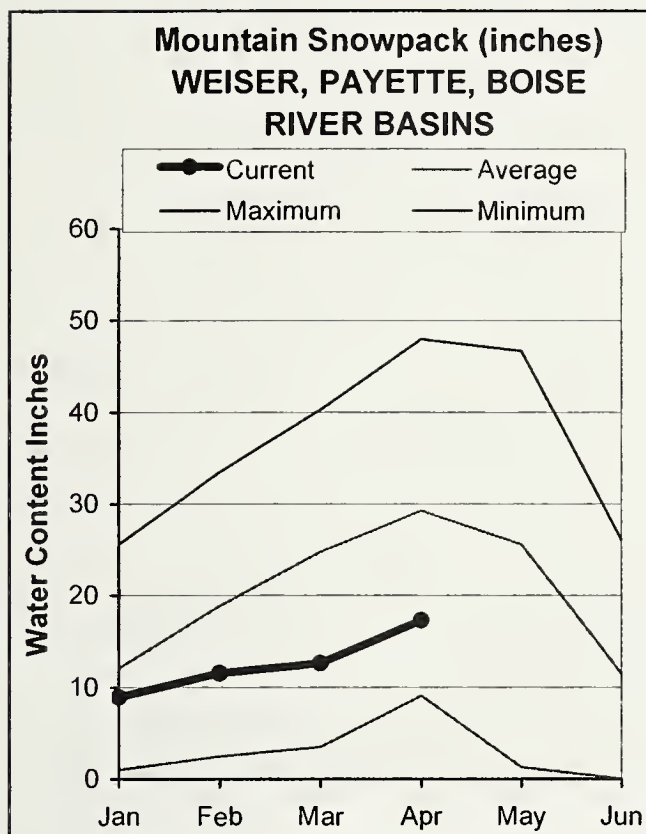
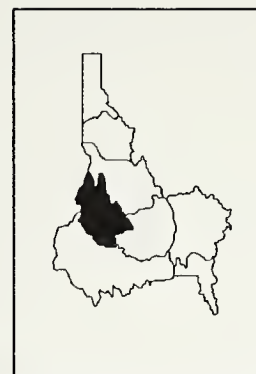
SALMON RIVER BASIN Reservoir Storage (1000 AF) - End of March					SALMON RIVER BASIN Watershed Snowpack Analysis - April 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Salmon River ab Salmon	12	89	61
					Lemhi River	12	87	61
					Middle Fork Salmon River	3	84	58
					South Fork Salmon River	3	74	59
					Little Salmon River	4	70	61
					Salmon Basin Total	33	78	60

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

WEISER, PAYETTE, BOISE RIVER BASINS APRIL 1, 2005



WATER SUPPLY OUTLOOK

March precipitation was 109% of average in these west-central basins. March precipitation amounts ranged from 2.4 to 7.0 inches, which is average for the month. The snowpacks in the Weiser, Payette and Boise basins range from 55-65% of average. The Weiser basin snowpack is 8th lowest since 1961; while the Payette and Boise snowpacks are the 6th lowest since 1961 and similar to 1992 and 1994, respectively. The Boise reservoir system is 51% of capacity, 82% of average, while the Payette reservoir system storage is at 68% of capacity, 111% of average. Streamflow forecasts range from 40-50% of average for most streams in these west-central mountains. By combining current reservoir storage with the projected streamflow, gives a Surface Water Supply Index of -3.1 for the Boise basin, similar to water supplies in 2001. A dry, hot summer could result in water supplies similar to 2001 in the Treasure Valley when some canals ran out of water in mid-August. There is a ten percent chance that water supplies will be adequate for the Boise basin irrigators if future precipitation is above average. If not, water users should prepare for shortages because once the summer dry season starts, there is not much snow or storage to meet demand levels. Surface water supplies in the Payette and Weiser basins should be better than 2001 but worst than 2004.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - April 1, 2005

Forecast Point	Forecast Period	<==== Drier ===== Future Conditions ===== Wetter =====>>						
		Chance Of Exceeding *					30-Yr Avg.	
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	(1000AF)
WEISER near Weiser (1)	APR-SEP	151	167	179	43	234	354	420
SF PAYETTE at Lowman	APR-JUL	160	196	220	50	242	282	440
	APR-SEP	177	218	245	50	270	315	495
DEADWOOD RESERVOIR Inflow (1,2)	APR-JUL	45	62	70	52	78	95	134
	APR-SEP	49	66	74	52	82	99	142
LAKE FORK PAYETTE near McCall	APR-JUL	37	45	50	59	55	63	85
	APR-SEP	39	47	52	58	57	65	89
NF PAYETTE at Cascade (1,2)	APR-JUL	215	230	240	49	275	355	490
	APR-SEP	235	250	260	49	295	375	530
NF PAYETTE nr Banks (2)	APR-JUL	255	276	290	45	340	415	645
	APR-SEP	271	294	310	45	365	450	690
PAYETTE nr Horseshoe Bend (1,2)	APR-JUL	410	620	715	44	810	1020	1610
	APR-SEP	405	660	775	44	890	1150	1750
BOISE near Twin Springs (1)	APR-JUL	212	295	330	52	365	450	635
	APR-SEP	235	320	355	51	390	475	690
SF BOISE at Anderson Ranch Dam (1,2)	APR-JUL	140	210	245	45	280	350	540
	APR-SEP	155	225	260	45	295	365	580
MORES CREEK near Arrowrock Dam	APR-JUL	35	39	41	31	52	67	131
	APR-SEP	37	41	43	31	54	70	137
BOISE near Boise (1,2)	APR-JUN	405	520	570	45	620	735	1260
	APR-JUL	335	540	630	45	720	925	1410
	APR-SEP	390	595	685	45	775	980	1530

WEISER, PAYETTE, BOISE RIVER BASINS
Reservoir Storage (1000 AF) - End of March

WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - April 1, 2005

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MANN CREEK	11.1	7.9	8.9	8.8	Mann Creek	2	70	54
CASCADE	693.2	502.5	457.7	428.8	Weiser River	5	83	62
DEADWOOD	161.9	77.1	86.6	91.6	North Fork Payette	8	67	59
ANDERSON RANCH	450.2	218.0	310.6	262.8	South Fork Payette	5	72	58
ARROWROCK	272.2	172.9	126.9	204.5	Payette Basin Total	14	69	60
LUCKY PEAK	293.2	126.9	209.6	162.6	Middle & North Fork Boise	5	72	56
LAKE LOWELL (DEER FLAT)	165.2	108.7	135.7	126.9	South Fork Boise River	8	88	64
					Mores Creek	5	61	58
					Boise Basin Total	15	77	60
					Canyon Creek	1	119	84

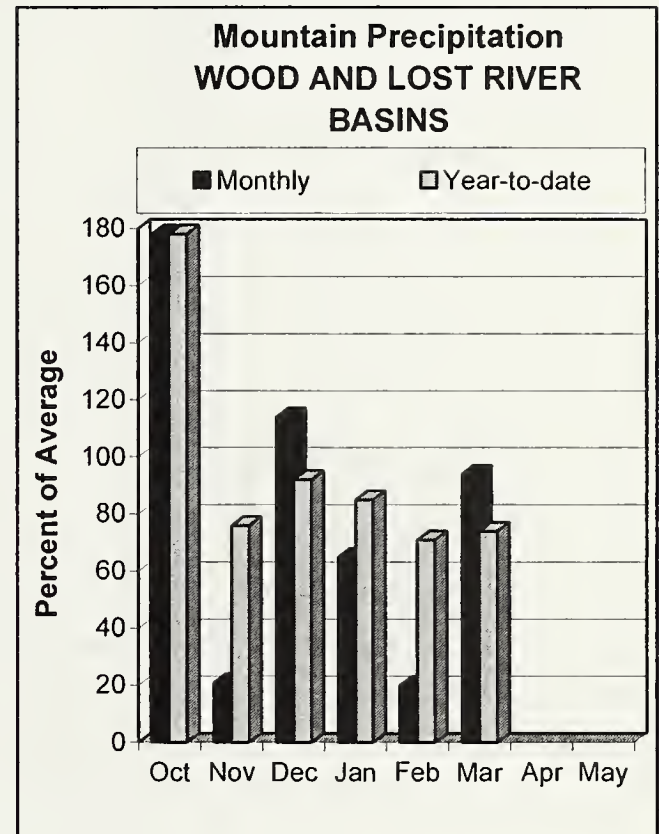
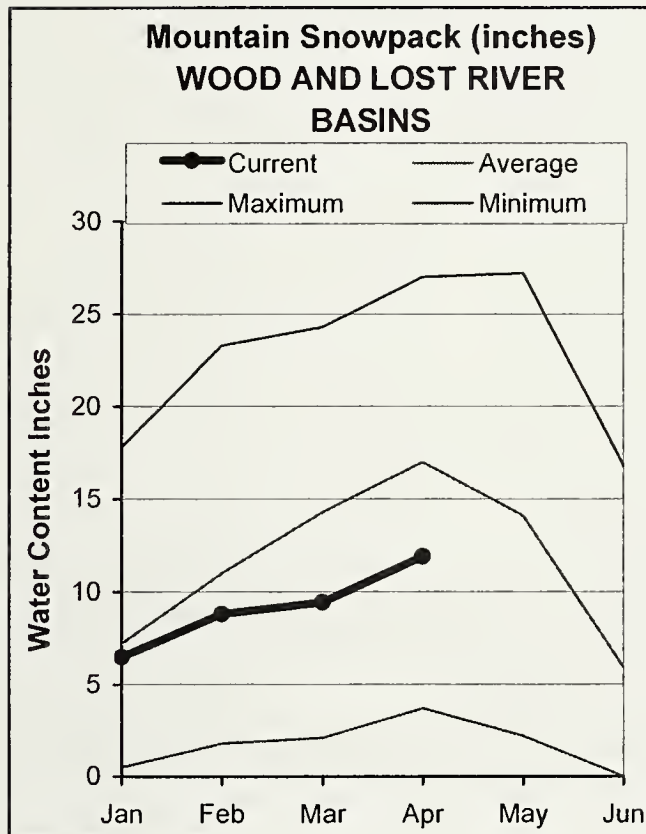
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

WOOD and LOST RIVER BASINS

APRIL 1, 2005



WATER SUPPLY OUTLOOK

Nearly a month's worth of precipitation fell the last two weeks March with some snow measuring stations receiving 2-3 feet of snowfall in a few days. The moisture was badly needed, but abundant snowfall on top of an old ripe snowpack that was starting to melt in all but higher elevation, north-facing slopes, also increased avalanche danger significantly. Precipitation in March was 94% of average and is 74% for the water year, about ten percentage points less than last year. Snowpack percentages vary in these central basins: Camas, Big Wood and Little Lost are 65-70% of average; Little Wood, Big Lost, Birch and Medicine Lodge basins are 80-85%; Fish Creek is 91%; and Camas-Beaver basins are average. Streamflow forecasts call for 51% of average for the Big Wood River at Hailey and decrease to 27% for Magic Reservoir inflow with Camas Creek forecast at 30%. Big Wood basin water users will see surface water supplies similar to those in 2004 and 2001. The Little Wood River is forecast at 52% of average and should have supplies similar to last year. The Little Lost River and Big Lost River at Howell Ranch are forecast at 58% of average, while Big Lost below Mackay Reservoir is forecast at 56%. Above average precipitation last fall improved soil moisture and allowed Mackay Reservoir to increase to 82% of capacity and is currently storing 13,000 acre-feet more than a year ago. With similar snowpacks as last year in the Big Lost and Little Lost, and resulting streamflow at 40% of average, near record low for the period of record, water users may wish to use the lesser streamflow forecast. Our forecast equations have not seen consecutive drought years like this, and the connection between surface and groundwater makes forecasting consecutive drought years difficult in these low runoff years. Above average spring precipitation will help ensure that the forecasts listed under the 50% Chance of Exceedance will occur.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - April 1, 2005

Forecast Point	Forecast Period	<<===== Drier =====		Future Conditions		===== Wetter =====>>		30-Yr Avg. (1000AF)
				Chance Of Exceeding *				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
BIG WOOD at Hailey (1)	APR-JUL	78	112	129	51	147	192	255
	APR-SEP	90	128	147	51	168	219	290
BIG WOOD ab Magic Reservoir	APR-JUL	21	34	45	24	58	82	190
	APR-SEP	27	40	48	24	72	108	204
CAMAS CREEK near Blaine	APR-JUL	16.0	24	30	30	37	49	100
	APR-SEP	16.0	24	30	30	37	49	101
BIG WOOD below Magic Dam (2)	APR-JUL	64	72	78	27	113	164	290
	APR-SEP	67	76	82	27	118	172	305
LITTLE WOOD R ab High Five Ck	APR-JUL	27	35	41	53	48	58	78
	APR-SEP	29	37	44	52	51	63	85
LITTLE WOOD near Carey (2)	APR-JUL	24	37	45	52	53	66	87
	APR-SEP	27	40	49	52	58	71	94
BIG LOST at Howell Ranch	APR-JUL	62	85	101	58	117	140	173
	APR-SEP	70	97	115	58	133	160	197
BIG LOST bl Mackay Reservoir	APR-JUL	46	65	78	55	91	110	141
	APR-SEP	57	80	96	56	112	135	172
LITTLE LOST bl Wet Creek	APR-JUL	9.2	14.1	17.5	57	21	25	31
	APR-SEP	11.5	17.8	22	56	27	33	39

WOOD AND LOST RIVER BASINS Reservoir Storage (1000 AF) - End of March					WOOD AND LOST RIVER BASINS Watershed Snowpack Analysis - April 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MAGIC	191.5	36.4	47.7	107.1	Big Wood ab Hailey	8	93	70
LITTLE WOOD	30.0	20.6	23.2	19.4	Camas Creek	4	141	66
MACKAY	44.4	36.4	23.6	32.7	Big Wood Basin Total	12	101	69
					Fish Creek	3	204	91
					Little Wood River	9	135	84
					Big Lost River	7	110	81
					Little Lost River	4	88	64
					Birch-Medicine Lodge Cree	4	106	80
					Camas-Beaver Creeks	4	114	101

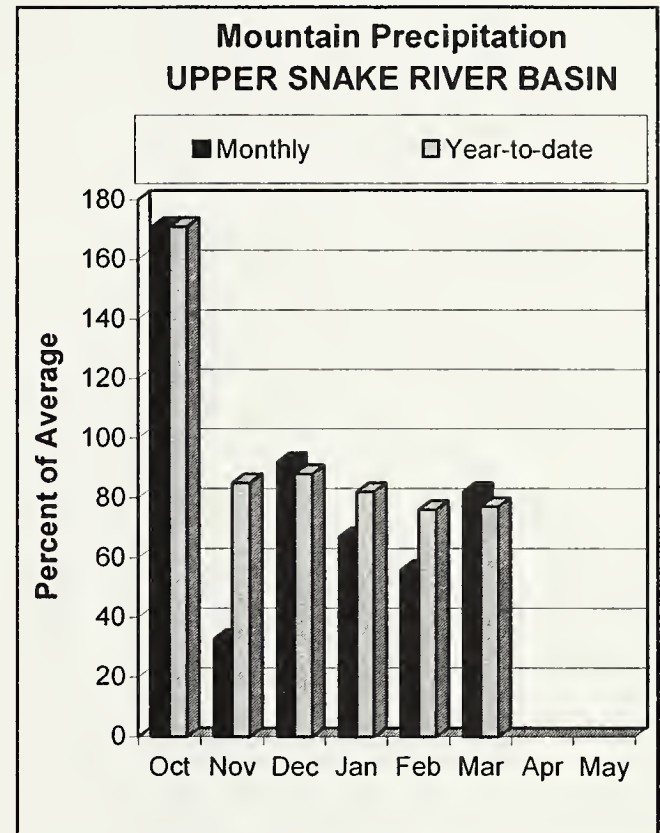
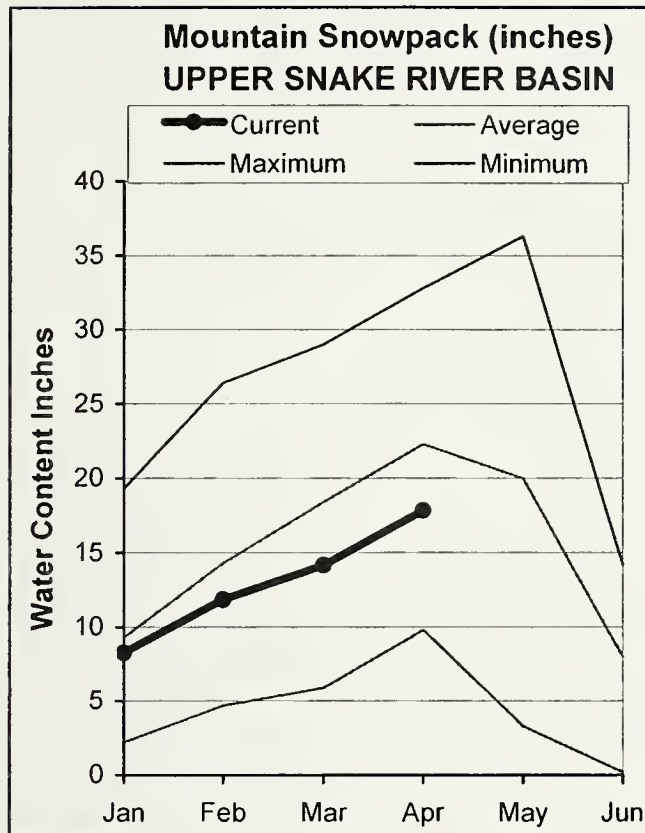
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

UPPER SNAKE RIVER BASIN

APRIL 1, 2005



WATER SUPPLY OUTLOOK

Unlike the rest of the state, which experienced a very dry beginning, and wet end of month, the Upper Snake received fairly steady precipitation throughout March. It was still below average at 82% and was the fifth consecutive month of below average precipitation. Precipitation for the water year is 77% of average, ten percentage points less than a year ago. However, soil moisture may help the situation as it is better than the past few drought years. The current snow at Lewis Lake Divide SNOTEL site shows the snow water is the second lowest since 2000 when the drought started, only 2001 had less snow. The resulting streamflow in 2001 was only 47% of average. Upper Snake basin snowpacks are 65-85% of average. The snowpack for the Snake River above Palisades Reservoir is 72% of average, 8th lowest since 1961. However, cumulative drought effects and lack of a good snowfall since 1999 is taking its toll on Idaho's water supply. Reservoir storage for the eight major reservoirs is 55% of capacity, 75% of average. Blackfoot Reservoir is the lowest at 11% of capacity, 17% of average. American Falls, Jackson and Palisades reservoirs are not projected to fill. Streamflow forecasts range from 33-44% of average for Willow Creek and Blackfoot River to 72% in Henrys Fork. Snake River near Heise is forecast at 61% of average; last year's runoff was 68%. Water users will see surface water supplies similar to the past several years, unless conditions change to the wetter side. Water users should plan accordingly based on their water use, water right and future Water Call decisions.

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - April 1, 2005

		<<===== Drier =====		Future Conditions		===== Wetter =====>>		
Forecast Point	Forecast Period			Chance Of Exceeding *				30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
HENRYS FORK near Ashton (2)	APR-JUL	335	380	410	72	440	485	570
	APR-SEP	460	515	550	72	585	640	765
HENRYS FORK near Rexburg (2)	APR-JUL	870	1010	1100	71	1190	1330	1560
	APR-SEP	1150	1300	1410	70	1520	1670	2010
FALLS RIVER nr Ashton (2)	APR-JUL	183	225	250	66	275	315	380
	APR-SEP	215	265	295	66	325	375	450
TETON RIVER NEAR DRIGGS	APR-JUL	61	81	95	58	109	129	165
	APR-SEP	78	103	120	57	137	162	210
TETON near St. Anthony	APR-JUL	160	210	240	59	270	320	405
	APR-SEP	195	250	285	59	320	375	480
SNAKE at Flagg Ranch	APR-JUL	235	275	300	64	325	365	470
	APR-SEP	260	300	330	64	360	400	515
SNAKE nr Moran (1,2)	APR-JUL	375	455	495	61	535	615	815
	APR-SEP	410	505	550	61	595	690	905
PACIFIC CREEK at Moran	APR-JUL	71	88	100	59	112	129	171
	APR-SEP	74	92	104	58	116	134	178
SNAKE ab resv nr Alpine (1,2)	APR-JUL	1160	1360	1450	61	1540	1740	2370
	APR-SEP	1320	1560	1670	61	1780	2020	2730
GREYS above Palisades	APR-JUL	160	190	210	62	230	260	340
	APR-SEP	185	220	240	61	260	295	395
SALT near Etna	APR-JUL	138	178	205	60	232	272	340
	APR-SEP	172	220	250	60	280	330	420
SNAKE nr Irwin (1,2)	APR-JUL	1600	1920	2070	62	2220	2540	3330
	APR-SEP	1860	2230	2400	62	2570	2940	3870
SNAKE near Heise (2)	APR-JUL	1780	2020	2180	61	2340	2580	3560
	APR-SEP	2080	2360	2550	61	2740	3020	4160
WILLOW CREEK nr Ririe (2)	APR-JUL	22	30	36	44	43	54	81
BLACKFOOT RESV INFLOW	APR-JUN	31	36	39	33	53	73	120
SNAKE nr Blackfoot (1,2)	APR-JUL	1970	2490	2730	59	2970	3490	4600
	APR-SEP	2570	3090	3330	59	3570	4090	5620
PORTNEUF at Topaz	APR-JUL	32	40	46	57	52	60	81
	APR-SEP	40	49	56	56	63	72	100
AMERICAN FALLS RESV INFLOW (1,2)	APR-JUL	831	997	1110	34	1440	2180	3240
	APR-SEP	919	1087	1200	34	1535	2265	3510

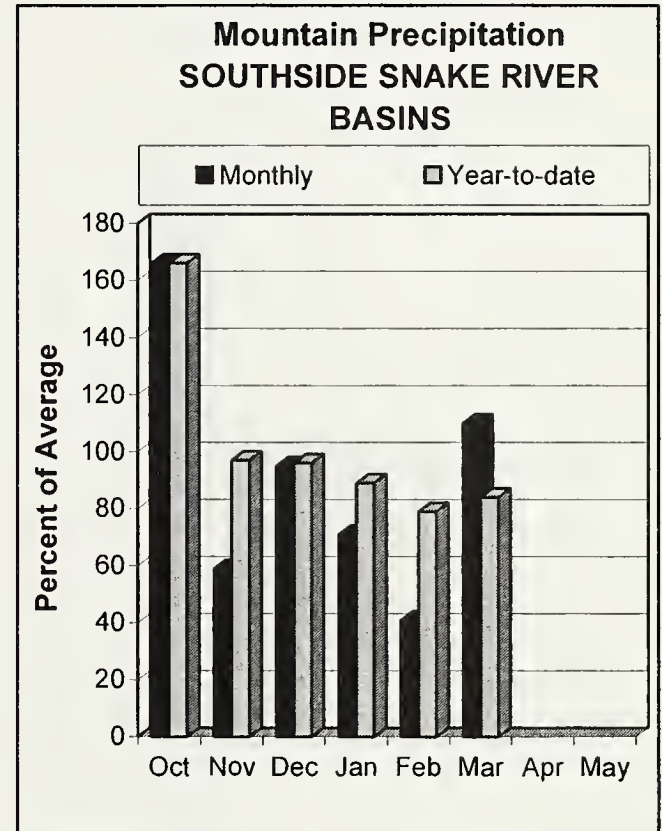
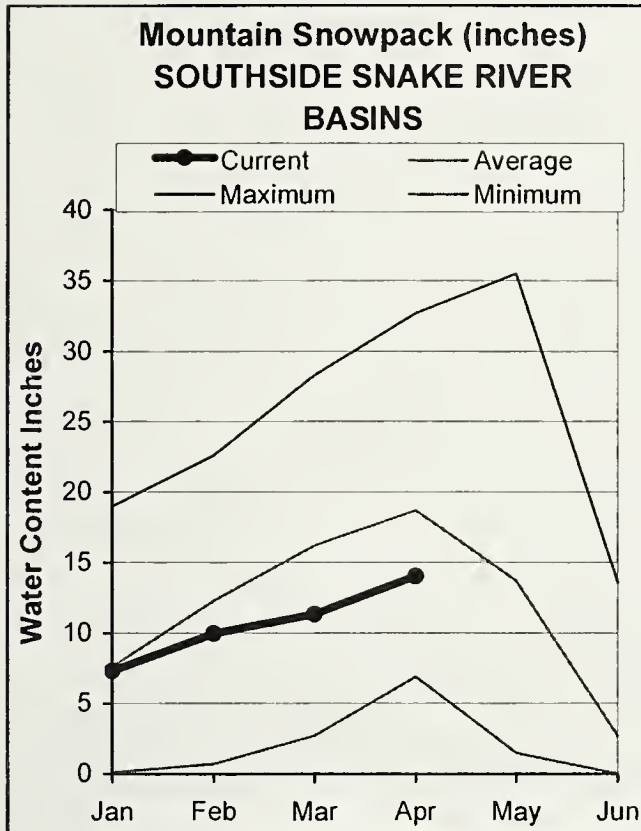
UPPER SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of March					UPPER SNAKE RIVER BASIN Watershed Snowpack Analysis - April 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
HENRYS LAKE	90.4	69.2	71.4	85.5	Henrys Fork-Falls River	12	83	74
ISLAND PARK	135.2	94.8	92.9	114.6	Teton River	8	88	72
GRASSY LAKE	15.2	9.0	10.0	12.3	Henrys Fork above Rexburg	20	85	74
JACKSON LAKE	847.0	154.8	185.3	486.6	Snake above Jackson Lake	9	81	66
PALISADES	1400.0	710.2	608.0	941.5	Gros Ventre River	3	93	66
RIRIE	80.5	35.9	33.0	41.6	Hoback River	5	101	73
BLACKFOOT	348.7	39.6	39.5	229.8	Greys River	5	108	81
AMERICAN FALLS	1672.6	1399.2	1250.4	1443.2	Salt River	5	120	88
					Snake above Palisades	28	94	72
					Willow Creek	7	99	78
					Blackfoot River	5	116	74
					Portneuf River	7	95	83
					Snake abv American Falls	49	94	75

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

SOUTHSIDE SNAKE RIVER BASINS APRIL 1, 2005



WATER SUPPLY OUTLOOK

March precipitation was 110% of average, first time above average precipitation fell since October 2004. This bumped the water year to date precipitation up slightly to 84% of average, which is twelve percentage points less than a year ago. Snowpack percentages range from 70-95% of average. Salmon Falls and Oakley basin snowpacks are nearly equal to what they were last year on April 1, however the seasonal peak was considerably greater and earlier last year. With above average temperatures and lack of low elevation snowpack in the Owyhee basin, future streamflow peaks are dependent on rain. Rain dominated hydrographs are much flashier as opposed to snowmelt dominated hydrographs produced from nature gradually releasing melt water from the accumulation of the winter snowpack. Reservoir storage in Oakley, Salmon Falls, Wildhorse and Owyhee ranges from 15-35% of capacity. Brownlee Reservoir is near full at 98% of capacity as inflows are only projected at 34% of average this summer. Oakley Reservoir inflow and Salmon Falls Creek are projected at 51% of average, shortages will occur. Salmon Falls basin water supplies will be similar to the past four years, while Oakley basin water supplies should be similar to last year. The Bruneau River is forecasted at 62% of average and will experience a short high water season dependent upon on spring precipitation and temperatures.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - April 1, 2005

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90%		Chance Of Exceeding *		30%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
OAKLEY RESERVOIR INFLOW	APR-JUL	8.6	12.0	14.7	51	17.6	22	29
	APR-SEP	9.7	13.4	16.2	51	19.3	24	32
SALMON FALLS CREEK nr San Jacinto	APR-JUN	21	31	38	51	45	55	75
	APR-JUL	22	33	41	51	49	60	80
	APR-SEP	24	35	43	51	51	62	84
BRUNEAU near Hot Spring	APR-JUL	75	104	127	62	152	192	205
	APR-SEP	79	110	133	62	159	201	215
OWYHEE near Gold Creek (2)	APR-JUL	5.9	10.2	13.8	55	17.9	25	25
	APR-SEP	5.6	9.7	13.2	55	17.2	24	24
OWYHEE nr Owyhee (2)	APR-JUL	39	46	51	62	65	85	82
OWYHEE near Rome	APR-JUL	112	162	200	53	243	313	380
OWYHEE RESV INFLOW (2)	APR-JUL	124	172	210	53	251	319	400
	APR-SEP	136	186	225	52	267	337	430
SUCCOR CK nr Jordan Valley	APR-JUL	3.4	4.0	4.5	37	7.1	10.9	12.1
SNAKE RIVER at King Hill (1,2)	APR-JUL	455	1112	1410	48	1710	2365	2940
SNAKE RIVER near Murphy (1,2)	APR-JUL	455	1139	1450	47	1760	2445	3090
SNAKE RIVER at Weiser (1,2)	APR-JUL	193	1394	1940	34	2485	3690	5770
SNAKE RIVER at Hells Canyon Dam (1,2	APR-JUL	276	1613	2220	34	2825	4160	6490
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	6184	9565	11100	51	12640	16020	21600

SOUTHSIDE SNAKE RIVER BASINS
Reservoir Storage (1000 AF) - End of March

SOUTHSIDE SNAKE RIVER BASINS
Watershed Snowpack Analysis - April 1, 2005

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
OAKLEY	75.6	18.5	15.2	36.0	Raft River	6	94	99
SALMON FALLS	182.6	28.5	26.7	70.2	Goose-Trapper Creeks	7	91	87
WILDHORSE RESERVOIR	71.5	19.2	21.2	46.2	Salmon Falls Creek	8	102	77
OWYHEE	715.0	251.0	387.2	593.0	Bruneau River	8	123	84
BROWNLEE	1420.0	1393.4	1097.0	1029.5	Owyhee Basin Total	20	97	69

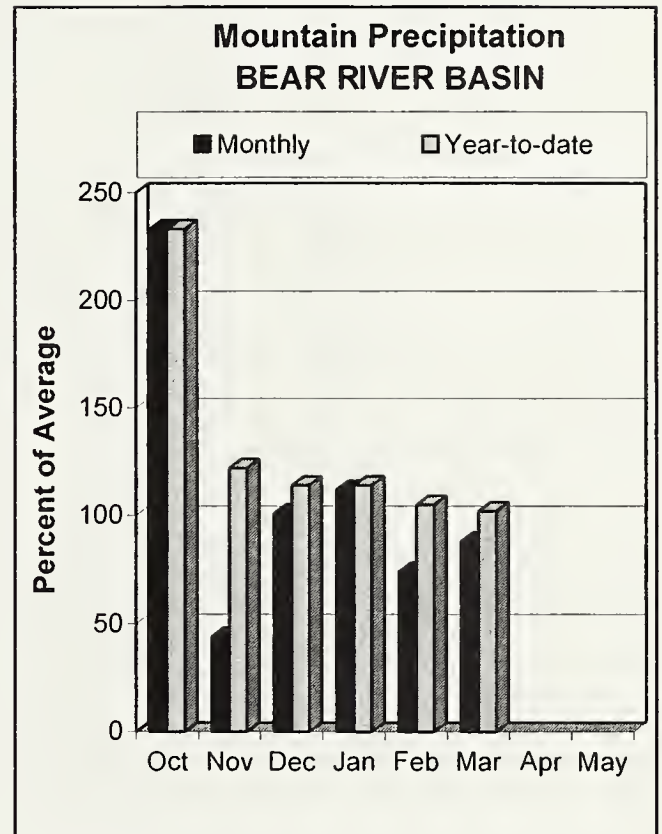
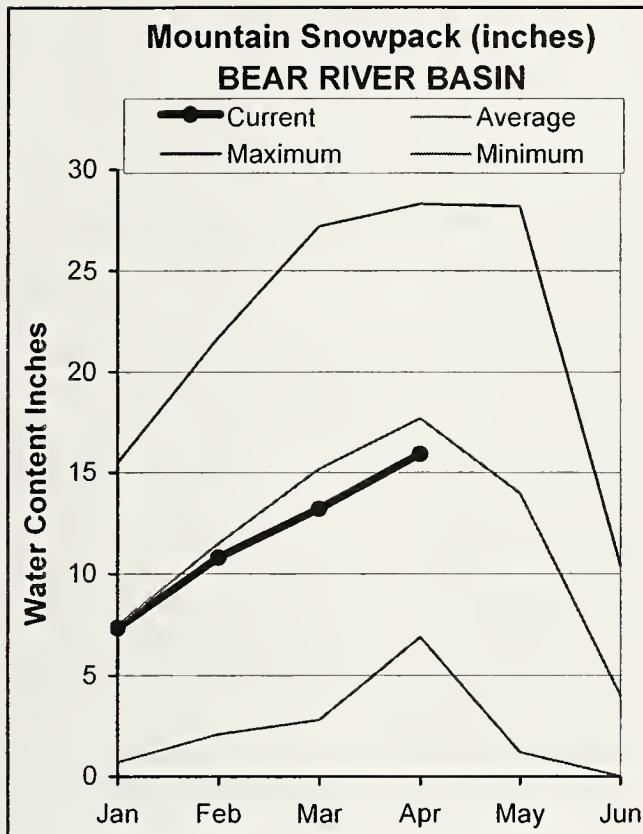
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.

BEAR RIVER BASIN

APRIL 1, 2005



WATER SUPPLY OUTLOOK

Precipitation in March ranged from 70-100% of average, and is average for the water year, 25% more than a year ago. Snowpack percentages range from 76% of average in 6 Malad basin to 103% in the Bear River basin above the Wyoming-Idaho state line. Overall, the Bear River basin snowpack is 97% of average, best since 1997! However, the snowpack has only ranged from 50% of average in 2001 to 94% in 1999. The downside is reservoir storage remains the lowest since the 1930s and reflects the eight-year drought that has gripped the region with below average snow levels in the basin. Bear Lake storage increased 20,000 acre-feet in March to 11% of capacity, 17% of average. This is 24,000 acre-feet less than a year ago, but all other pieces of the water supply picture are looking more encouraging than the previous year. Streamflow forecasts remain the highest in the headwaters Bear River in Utah at 119% of average, and decrease to 57% of average for the Bear River at Stewart Dam which feeds Bear Lake. Smiths Fork is forecast at 88% of average and will help provide additional streamflow in the lower elevations in Idaho. Irrigation releases will be made from Bear Lake with the lake level above 5904 feet, but water allotments will be well below a full amount. Past history in the Bear Lake shows that several wet years are needed to prime the hydrologic system in the lower parts of the basin. Timely rains like the ones received last summer will help improve irrigated agriculture fields, rangelands and dryland crops in this region. Let's hope the wetness received this year is an indication of years to come.

BEAR RIVER BASIN
Streamflow Forecasts - April 1, 2005

Forecast Point	Forecast Period	<<===== Drier =====		Future Conditions		===== Wetter =====>>		30-Yr Avg. (1000AF)
				Chance Of Exceeding *				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Bear River nr UT-WY State Line	APR-SEP	117	133	144	115	155	171	125
Bear River ab Reservoir nr Woodruff	APR-SEP	126	152	169	119	186	212	142
Smiths Fork nr Border	APR-JUL	72	83	91	88	99	110	103
	APR-SEP	83	96	105	87	114	127	121
Bear River at Stewart Dam	APR-JUL	87	113	133	57	154	189	234
	APR-SEP	108	138	161	62	186	225	262

BEAR RIVER BASIN Reservoir Storage (1000 AF) - End of March					BEAR RIVER BASIN Watershed Snowpack Analysis - April 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BEAR LAKE	1421.0	156.0	180.8	923.8	Smiths & Thomas Forks	4	123	95
MONTPELIER CREEK	4.0	2.0	1.3	1.7	Bear River ab WY-ID line	14	160	103
					Montpelier Creek	2	142	93
					Mink Creek	4	130	89
					Cub River	3	131	95
					Bear River ab ID-UT line	25	145	97
					Malad River	3	93	76

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural volume - actual volume may be affected by upstream water management.

Streamflow Adjustment List for All Forecasts Published in Idaho Water Supply Outlook Report: streamflow forecasts are projections of runoff volumes that would reservoirs or diversions. These values are referred to as natural or adjusted flows. To make these adjustments, changes in reservoir storage, diversions, and inter-basin transfer observed (actual) streamflow volumes. The following list documents the adjustments made for each forecast point. (Revised Dec. 2004).

Panhandle River Basins

Kootenai R at Leonia, ID
 + Lake Koocanusa (Storage Change)
 Boundary Ck nr Porthill, ID – No Corrections
 Moyie R at Eastport, ID – No Corrections
 Smith Creek nr Porthill, ID – No Corrections
 Clark Fork R at Whitehorse Rapids, ID
 + Hungry Horse (Storage Change)
 + Flathead Lake (Storage Change)
 + Noxon Rapids Resv (Storage Change)
 Pend Oreille Lake Inflow, ID
 + Pend Oreille R at Newport, WA
 + Hungry Horse (Storage Change)
 + Flathead Lake (Storage Change)
 + Noxon Rapids (Storage Change)
 + Pend Oreille Lake (Storage Change)
 + Priest Lake (Storage Change)
 Priest R nr Priest R, ID
 + Priest Lake (Storage Change)
 NF Coeur d'Alene R at Enaville, ID - No Corrections
 St. Joe R at Calder, ID - No Corrections
 Spokane R nr Post Falls, ID
 + Coeur d'Alene Lake (Storage Change)
 Spokane R at Long Lake, WA
 + Coeur d'Alene Lake (Storage Change)
 + Long Lake, WA (Storage Change)

Clearwater River Basin

Selway R nr Lowell - No Corrections
 Lochsa R nr Lowell - No Corrections
 Dworshak Resv Inflow, ID
 + Clearwater R nr Peck, ID
 - Clearwater R at Orofino, ID
 + Dworshak Resv (Storage Change)
 Clearwater R at Orofino, ID - No Corrections
 Clearwater R at Spalding, ID
 + Dworshak Resv (Storage Change)

Salmon River Basin

Salmon R at Salmon, ID - No Corrections
 Lemhi R nr Lemhi, ID – No Corrections
 MF Salmon R at MF Lodge, ID – No Corrections
 Salmon R at White Bird, ID - No Corrections

Weiser, Payette, Boise River Basins

Weiser R nr Weiser, ID - No Corrections
 SF Payette R at Lowman, ID - No Corrections
 Deadwood Resv Inflow, ID
 + Deadwood R blw Deadwood Resv nr Lowman
 + Deadwood Resv (Storage Change)
 Lake Fork Payette R nr McCall, ID – No Corrections
 NF Payette R at Cascade, ID
 + Cascade Resv (Storage Change)
 + Payette Lake (Storage Change)

NF Payette R nr Banks, ID
 + Cascade Resv (Storage Change)
 + Payette Lake (Storage Change)
 Payette R nr Horseshoe Bend, ID
 + Cascade Resv (Storage Change)
 + Deadwood Resv (Storage Change)
 + Payette Lake (Storage Change)
 Boise R nr Twin Springs, ID - No Corrections
 SF Boise R at Anderson Ranch Dam, ID
 + Anderson Ranch Resv (Storage Change)
 Boise R nr Boise, ID
 + Anderson Ranch Resv (Storage Change)
 + Arrowrock Resv (Storage Change)
 + Lucky Peak Resv (Storage Change)

Wood and Lost River Basins

Big Wood R at Hailey, ID - No Corrections
 Big Wood R abv Magic Resv, ID
 + Big Wood R nr Bellevue, ID
 + Willow Ck
 Camas Ck nr Blaine – No Corrections
 Big Wood R blw Magic Dam nr Richfield, ID
 + Magic Resv (Storage Change)
 Little Wood R abv High Five Ck, ID – No Corrections
 Little Wood R nr Carey, ID
 + Little Wood Resv (Storage Change)
 Big Lost R at Howell Ranch, ID - No Corrections
 Big Lost R blw Mackay Resv nr Mackay, ID
 + Mackay Resv (Storage Change)
 Little Lost R blw Wet Ck nr Howe, ID - No Corrections

Upper Snake River Basin

Henry's Fork nr Ashton, ID
 + Henry's Lake (Storage Change)
 + Island Park Resv (Storage Change)
 Henry's Fork nr Rexburg, ID
 + Henry's Lake (Storage Change)
 + Island Park Resv (Storage Change)
 + Grassy Lake (Storage Change)
 + Diversions from Henry's Fk btw Ashton to St. Anthony, ID
 + Diversions from Henry's Fk btw St. Anthony to Rexburg, ID
 + Diversions from Falls R abv nr Ashton, ID
 + Diversions from Falls R nr Ashton to Chester, ID
 Falls R nr Ashton, ID
 + Grassy Lake (Storage Change)
 + Diversions from Falls R abv nr Ashton, ID
 Teton R nr Driggs, ID - No Corrections
 Teton R nr St. Anthony, ID
 - Cross Cut Canal into Teton R
 + Sum of Diversions for Teton R abv St. Anthony, ID
 Snake R nr Moran, WY
 + Jackson Lake (Storage Change)
 Pacific Ck at Moran, WY – No Corrections
 Snake R abv Palisades, WY
 + Jackson Lake (Storage Change)

Greys R abv Palisades, WY – No Corrections
Salt R abv Palisades, WY – No Corrections
Palisades Resv Inflow, ID
+ Snake R nr Irwin, ID
+ Jackson Lake (Storage Change)
+ Palisades Resv (Storage Change)
Snake R nr Heise, ID
+ Jackson Lake (Storage Change)
+ Palisades Resv (Storage Change)
Willow Ck nr Ririe, ID
+ Ririe Resv (Storage Change)
Blackfoot Reservoir Inflow, ID
+ Blackfoot R
+ Blackfoot Resv (Storage Change)
Snake R nr Blackfoot, ID
+ Palisades Resv (Storage Change)
+ Jackson Lake (Storage Change)
+ Diversions from Snake R btw Heise and Shelly
+ Diversions from Snake R btw Shelly and Blackfoot
Portneuf R at Topaz, ID - No Corrections
American Falls Resv Inflow, ID
+ Snake River at Neeley
+ All Corrections Made for Henrys Fk nr Rexburg, ID
+ Jackson Lake (Storage Change)
+ Palisades Resv (Storage Change)
+ Diversions from Snake R btw Heise and Shelly
+ Diversions from Snake R btw Shelly and Blackfoot

Southside Snake River Basins

Oakley Resv Inflow, ID
+ Goose Ck abv Trapper Ck
+ Trapper Ck nr Oakley
Salmon Falls Ck nr San Jacinto, NV - No Corrections
Bruneau R nr Hot Springs, ID - No Corrections
Owyhee R nr Gold Ck, NV
+ Wildhorse Resv (Storage Change)
Owyhee R nr Owyhee, NV
+ Wildhorse Resv (Storage Change)
Owyhee R nr Rome, OR – No Corrections
Owyhee Resv Inflow, OR
+ Owyhee R blw Owyhee Dam, OR
+ Owyhee Resv (Storage Change)
+ Diversions to North and South Canals
Succor Ck nr Jordan Valley, OR - No Corrections
Snake R at King Hill, ID - No Corrections
Snake R nr Murphy, ID - No Corrections
Snake R at Weiser, ID - No Corrections
Snake R at Hells Canyon Dam, ID
+ Brownlee Resv (Storage Change)

Bear River Basin

Bear R nr UT-WY Stateline, UT – No Corrections
Bear R abv Resv nr Woodruff, UT – No Corrections
Smiths Fork nr Border, WY - No Corrections
Bear R blw Stewart Dam nr Montpelier, ID
+ Bear R blw Stewart Dam
+ Rainbow Inlet Canal

Reservoir Capacity Definitions (Units In 1,000 Acre-Feet, KAF)

Different agencies use various definitions when reporting reservoir capacity and contents. Reservoir storage terms include dead, inactive, active, and surcharge storage. This table lists these volumes for each reservoir, and defines the storage volumes NRCS uses when reporting capacity and current reservoir storage. In most cases, NRCS reports usable storage, which includes active and inactive storage. (Revised December 2004)

Basin/ Reservoir	Dead Storage	Inactive Storage	Active Storage	Surcharge Storage	Nrcs Capacity	Nrcs Capacity Includes
<u>Panhandle Region</u>						
Hungry Horse	39.73	--	3451.00	--	3451.0	Active
Flathead Lake	Unknown	--	1791.00	--	1971.0	Active
Noxon Rapids	Unknown	--	335.00	--	335.0	Active
Pend Oreille	406.20	112.40	1042.70	--	1561.3	Dead+Inactive+Active
Coeur d'Alene	--	13.50	225.00	--	238.5	Inactive+Active
Priest Lake	20.00	28.00	71.30	--	119.3	Dead+Inactive+Active
<u>Clearwater Basin</u>						
Dworshak	--	1452.00	2016.00	--	3468.0	Inactive+Active
<u>Weiser/Boise/Payette Basins</u>						
Mann Creek	1.61	0.24	11.10	--	11.1	Active
Cascade	--	46.70	646.50	--	693.2	Inactive+Active
Deadwood	--	--	161.90	--	161.9	Active
Anderson Ranch	24.90	37.00	413.10	--	450.1	Inactive+Active
Arrowrock	--	--	272.20	--	272.2	Active
Lucky Peak	--	28.80	264.40	13.80	293.2	Inactive+Active
Lake Lowell	7.90	5.80	159.40	--	165.2	Inactive+Active
<u>Wood/Lost Basins</u>						
Magic	Unknown	--	191.50	--	191.5	Active
Little Wood	--	--	30.00	--	30.0	Active
Mackay	0.13	--	44.37	--	44.4	Active
<u>Upper Snake Basin</u>						
Henrys Lake	--	--	90.40	--	90.4	Active
Island Park	0.40	--	127.30	7.90	135.2	Active+Surcharge
Grassy Lake	--	--	15.18	--	15.2	Active
Jackson Lake	Unknown	--	847.00	--	847.0	Active
Palisades	44.10	155.50	1200.00	--	1400.0	Dead+Inactive+Active
Ririe	4.00	6.00	80.54	10.00	80.5	Active
Blackfoot	--	--	348.73	--	348.7	Active
American Falls	--	--	1672.60	--	1672.6	Active
<u>Southside Snake Basins</u>						
Oakley	0	--	75.60	--	75.6	Active
Salmon Falls	48.00	5.0	182.65	--	182.6	Active+Inactive
Wildhorse	--	--	71.50	--	71.5	Active
Owyhee	406.83	--	715.00	--	715.0	Active
Brownlee	0.45	444.70	975.30	--	1420.0	Inactive+Active
<u>Bear River Basin</u>						
Bear Lake	5.0 maf	--	1421.00	--	1421.0	Active
Montpelier Creek	0.21	--	3.84	--	4.0	Dead+Active

Interpreting Streamflow Forecasts

Introduction

Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

Most Probable (50 Percent Chance of Exceeding) Forecast. This forecast is the best estimate of streamflow volume that can be produced given current conditions and based on the outcome of similar past situations. There is a 50 percent chance that the streamflow volume will exceed this forecast value. There is a 50 percent chance that the streamflow volume will be less than this forecast value.

The most probable forecast will rarely be exactly right, due to errors resulting from future weather conditions and the forecast equation itself. This does not mean that users should not use the most probable forecast; it means that they need to evaluate existing circumstances and determine the amount of risk they are willing to take by accepting this forecast value.

To Decrease the Chance of Having Too Little Water

If users want to make sure there is enough water available for their operations, they might determine that a 50 percent chance of the streamflow volume being lower than the most probable forecast is too much risk to take. To reduce the risk of not having enough water available during the forecast period, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded (or possibly some point in-between). These include:

70 Percent Chance of Exceeding Forecast. There is a 70 percent chance that the streamflow volume will exceed this forecast value.

There is a 30 percent chance the streamflow volume will be less than this forecast value.

90 Percent Chance of Exceeding Forecast. There is a 90 percent chance that the streamflow volume will exceed this forecast value.

There is a 10 percent chance the streamflow volume will be less than this forecast value.

To Decrease the Chance of Having Too Much Water

If users want to make sure they don't have too much water, they might determine that a 50 percent chance of the streamflow being higher than the most probable forecast is too much of a risk to take. To reduce the risk of having

too much water available during the forecast period, users can base their operational decisions on one of the forecasts with a smaller chance of being exceeded. These include:

30 Percent Chance of Exceeding Forecast. There is a 30 percent chance that the streamflow volume will exceed this forecast value. There is a 70 percent chance the streamflow volume will be less than this forecast value.

10 Percent Chance of Exceeding Forecast. There is a 10 percent chance that the streamflow volume will exceed this forecast value. There is a 90 percent chance the streamflow volume will be less than this forecast value.

Using the forecasts - an example

Using the Most Probable Forecast. Using the example forecasts shown below, users can reasonably expect 36,000 acre-feet to flow past the gaging station on the Mary's River near Death between March 1 and July 31.

Using the Higher Exceedence Forecasts. If users anticipate a somewhat drier trend in the future (monthly and seasonal weather outlooks are available from the National Weather Service every two weeks), or if they are operating at a level where an unexpected shortage of water could cause problems, they might want to plan on receiving only 20,000 acre-feet (from the 70 percent chance of exceeding forecast). In seven out of ten years with similar conditions, streamflow volumes will exceed the 20,000 acre-foot forecast.

If users anticipate extremely dry conditions for the remainder of the season, or if they determine the risk of using the 70 percent chance of exceeding forecast is too great, then they might plan on receiving only 5000 acre-feet (from the 90 percent chance of exceeding forecast). Nine out of ten years with similar conditions, streamflow volumes will exceed the 5000 acre-foot forecast.

Using the Lower Exceedance Forecasts. If users expect wetter future conditions, or if the chance that five out of every ten years with similar conditions would produce streamflow volumes greater than 36,000 acre-feet was more than they would like to risk, they might plan on receiving 52,000 acre-feet (from the 30 percent chance of exceeding forecast) to minimize potential flooding problems. Three Out of ten years with similar conditions, streamflows will exceed the 52,000 acre-foot forecast.

In years when users expect extremely wet conditions for the remainder of the season and the threat of severe flooding and downstream damage exists, they might choose to use the 76,000 acre-foot (10 percent chance of exceeding) forecast for their water management operations. Streamflow volumes will exceed this level only one year out of ten.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
SF PAYETTE RIVER at Lowman	APR-JUL	329	414	471	109	528	613	432
	APR-SEP	369	459	521	107	583	673	488
BOISE RIVER near Twin Springs (1)	APR-JUL	443	610	685	109	760	927	631
	APR-SEP	495	670	750	109	830	1005	

For more information concerning streamflow forecasting ask your local NRCS field office for a copy of "A Field Office Guide for Interpreting Streamflow Forecasts" or visit our Web page.

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